

DARPA, AFRL demonstrate NEST technology

by **Fran Crumb, Information Directorate**

ROME, N.Y.— New networked sensor fusion technology were demonstrated in September by the Defense Advanced Research Projects Agency (DARPA) with support from the Air Force Research Laboratory's (AFRL) Information Directorate.

The demonstration at the McKenna Military Operations in Urban Terrain site at Ft. Benning, Ga. showed sensors able of pinpointing the location of a shooter within one meter. The Network Embedded Systems Technology (NEST) field experiments were sponsored by the Information Exploitation Office of the Defense Advanced Research Projects Agency (DARPA).

Dr Vijay Raghavan, DARPA/IXO program manager, conducted this successful demonstration. Juan Carbonell and Stephen Benning of the Information Systems Division, Wright-Patterson Air Force Base, Ohio, represented the Information Directorate.

The goal of the NEST program is "fine-grain" fusion of physical and information processes. The quantitative target is to build dependable, real-time, distributed, embedded applications comprising 100 to 100,000 simple computing nodes. The nodes will include physical and information system components coupled by sensors and actuators.

"This initiative is inspired by extraordinary advances in micro-sensors, micro-electronics, advanced sensor fusion algorithms, self-localization technologies and information technologies," Carbonell said. "NEST is advancing capabilities in networked sensor technologies, hardware, software and communications. The long-term vision is an intelligent, web-centric distribution and fusion of sensor information that will greatly enhance the situational awareness of warfighters."

The system demonstrated was accurate to within one meter and had a latency of less than a half second. The system was even able to show the difference between shots being taken by a soldier while kneeling or standing up.

"Overall, the demonstrations were a complete success," Raghavan said. "There were no problems with any of the demonstrations and positive feedback was received from the observers. There is strong interest for maturing the shooter localization technology into a system that can quickly be transitioned into the field." @